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EXAMINER	
XAVIER, ANTONIO J	
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2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,399	LIPMAN ET AL.	
	Examiner	Art Unit	
	ANTONIO XAVIER	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 7-10, 15, 18, 22, 24-31, 36-39, 44, 47, 51 and 53-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 3-6,11-14,16,17,19-21,23,32-35,40-43,45,46,48-50 and 52.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 7-9, 15, 18, 22, 24-27, 29-31, 36-38, 44, 47, 51, 53-56 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa et al. (U.S. Pat. No.: 4,320,292) in view of Lipman et al. (WO 03/104965).

With respect to Claim 1, Oikawa teaches an interface apparatus comprising:

a panel defining at least one edge (Figs. 1, 2 and 6-11);

at least one detector arranged along said at least one edge of said panel (Fig. 1, items 13 and 14 and Figs. 6-7, items 68); and

an electromagnetic radiation beam emitter operative to direct at least one beam of electromagnetic radiation onto said panel from a variable distance and at a variable angle (Figs. 1-3 and 7 and Col. 6, lines 49-51);

said panel being operative to transmit electromagnetic radiation from said at least one beam impinging thereon to said at least one edge thereof, for detection by said at least one detector (Figs. 1, 2 and 6-11 and Col. 3, lines 28-46 teach the light from the

input device is scattered and detected at the edges), said panel being operative to attenuate said electromagnetic radiation passing there through to said at least one edge as a function of the distance traveled by the electromagnetic radiation through the panel (Col. 3, line 65. Examiner notes that the light inherently attenuates as a function of time and distance traveled), whereby said at least one detector is operative to provide at least one output (Col. 3, lines 34-52).

However, Oikawa fails to expressly teach an output usable to determine said variable distance and said variable angle (emphasis added).

Lipman teaches a light pen system to receive at least one output and to determine said variable distance and variable angle (p.7, line 23-p.8, line 24). It would have been obvious to one of ordinary skill in the art to modify the detection system of Oikawa to include the stylus and angle detection of Lipman to provide advanced functionality resulting in an intuitive and responsive user interface (Lipman, p. 5, line 10).

With respect to Claim 2, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, and wherein said panel is selected from a group consisting of: a display (Oikawa, Col. 9, lines 17-20), a mobile telephone display panel, a hand- held computing device display panel, a television panel and an input pad panel.

With respect to Claim 7, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, and wherein said at least one detector comprises a substantially linear array of detectors (Oikawa, Fig. 1).

With respect to Claim 8, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, and wherein said at least one detector is capable of detecting said electromagnetic radiation at predetermined frequencies in at least one of visible and non-visible ranges (Oikawa, Col. 6, lines 49-51 teach the light source is an infrared ray. Examiner notes that a detector designed to detect an infrared ray inherently teaches detection of electromagnetic radiation at a predetermined frequency in non-visible ranges. Examiner further notes that the predetermined frequency in the claim as written is not defined and the group including at least one of visible and non-visible ranges reads on all electromagnetic radiation).

With respect to Claim 9, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, and wherein said electromagnetic radiation beam emitter is operative to provide at least one of a substantially conical beam (Oikawa, Fig. 2 teaches a conical beam and Col. 6, line 53 teaches a conical tip), at least one substantially collimated beam, at least one beam having a substantially asymmetrical cross section, at least one beam having a substantially pyramidal shape and at least one beam having a substantially polygonal cross section.

With respect to Claim 15, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, and wherein said electromagnetic radiation beam emitter is operative to provide at least one of a modulated beam, a beam of visible light and a beam of non-visible electromagnetic radiation (Oikawa, Col. 6, lines 49-51).

With respect to Claim 18, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, and also comprising detector output processing circuitry operative to receive at least one output of said at least one detector and to provide an output indication of at least one of location, orientation, shape and size of at least one impingement spot defined by impingement of said at least one electromagnetic radiation beam on said panel (Oikawa, Col. 3, lines 34-52).

With respect to Claim 22, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, and also comprising detector output processing circuitry operative to receive at least one output of said at least one detector and to provide an output indication of at least one of the location and angular orientation of said electromagnetic radiation beam emitter (Lipman, p.7, line 23-p.8, line 26).

The further limitations of Claims 24-26 are rejected for substantially the same reasons as Claim 22, discussed above.

With respect to Claim 27, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above, wherein impingement of said beam on said panel provides a substantially elliptical impingement spot (Oikawa, Fig. 2 and Col. 6, line 53 teach a conical shaped beam. Examiner notes that a conical shaped beam provides a substantially elliptical impingement spot, particularly when the beam is at an angle).

With respect to Claim 29, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above and comprising analysis circuitry operative to employ detected variations in intensity of said electromagnetic radiation at different locations on an impingement spot defined by impingement of said beam on said panel, thereby to assist in determination of an angle of intersection between said beam and said panel (Lipman, p.7, line 23-p.8, line 24).

With respect to Claim 30, Oikawa teaches an interface method comprising: providing a panel defining at least one edge (Figs. 1, 2 and 6-11), at least one detector arranged along said at least one edge of said panel (Fig. 1, items 13 and 14 and Figs. 6-7, items 68) and an electromagnetic radiation beam emitter operative to direct at least one beam of electromagnetic radiation onto said panel from a variable distance and at a variable angle (Figs. 1-3 and 7 and Col. 6, lines 49-51);

directing said beam of electromagnetic radiation from said electromagnetic radiation beam emitter onto said panel, thereby producing at least one impingement

spot (Figs. 1, 2 and 7 and Col. 3, lines 28-46 teach the light from the input device is directed onto the panel producing at least one impingement spot and then scattered and detected at the edges);

employing said panel to transmit electromagnetic radiation from said at least one impingement spot to said at least one edge thereof (Figs. 1, 2 and 6-11 and Col. 3, lines 28-46 teach the light from the input device is scattered and detected at the edges), said panel being operative to attenuate said electromagnetic radiation passing therethrough to said at least one edge as a function of the distance traveled by the electromagnetic radiation through the panel (Col. 3, line 65. Examiner notes that the light inherently attenuates as a function of time and distance traveled);

detecting, by said at least one detector, said electromagnetic radiation transmitted by said panel to said at least one edge (Col. 3, lines 34-52);

However, Oikawa fails to expressly teach employing an output of said at least one detector to determine said variable distance and said variable angle (emphasis added).

Lipman teaches a light pen system to receive at least one output of said at least one detector and to determine said variable distance and variable angle (p.7, line 23-p.8, line 24). It would have been obvious to one of ordinary skill in the art to modify the detection system of Oikawa to include the stylus and angle detection of Lipman to provide advanced functionality resulting in an intuitive and responsive user interface (Lipman, p. 5, line 10).

The further limitations of Claims 31, 36-38, 44, 47, 51, 53-56 and 58 are rejected for substantially the same reasons as Claims 2, 7-9, 15, 18, 22, 24-27 and 29, discussed above.

3. Claims 10, 28, 39 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa in view of Lipman and further in view of Applicant admitted prior art (hereinafter referred to as "AAPA").

With respect to Claim 10, Oikawa in view of Lipman teaches the interface apparatus according to Claim 1, discussed above. However, Oikawa in view of Lipman fails to expressly teach wherein said electromagnetic radiation beam emitter is operative to provide a plurality of beams.

AAPA teaches providing a plurality of beams (based on prior official notice. See response to arguments below). It would have been obvious to one of ordinary skill in the art to modify the light pen of Oikawa in view of Lipman to provide a plurality of beams as taught by AAPA to improve the functionality and versatility of the overall system.

With respect to Claim 28, Oikawa in view of Lipman teaches the interface apparatus according to Claim 27, discussed above, and also comprising analysis circuitry operative to determine the elliptical eccentricity of the light incident on the

display and determining an angle of intersection between said beam and said panel (Lipman, p.7, line 23-p.8, line 24). However, Oikawa in view of Lipman fail to expressly teach determining a ratio of a major axis and a minor axis of said elliptical impingement spot.

AAPA teaches the equivalence of using the major/minor axis of said elliptical impingement and Lipman's calculation of the elliptical eccentricity for their use in determining an angle of intersection (based on prior official notice. See response to arguments below). Examiner notes that the selection of any of these known equivalents would be within the level of one of ordinary skill in the art.

The further limitations of Claims 39 and 57 are rejected for substantially the same reasons as Claims 10 and 28, discussed above.

Response to Arguments

4. Applicant's arguments with respect to claims 1-2, 7-9, 15, 18 and 27 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's arguments filed December 2, 2009 (hereinafter "Remarks") have been fully considered but they are not persuasive.

Claim 10

On pages 12-13 of the Remarks, Applicant argues that Oikawa's "photodiode sensors work in a binary manner to provide a single signal in the x axis and a single signal in the y axis to determine the x-y coordinate of the impingement point of the light beam on the display. If a plurality of beams is used and these were to fall in different wave guides, then Oikawa would not be able to provide a binary output of position, because there would be multiple outputs detected. This would prevent a binary output from detecting the actual position of the impingement point and therefore the intention of a user" (emphasis added). Examiner is not persuaded.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., simultaneously emitting a plurality of beams) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Examiner notes that the claimed limitation reads on a stylus with the option to emit a plurality of different beams (i.e., multiple colors or shapes) one at a time.

However, in the interest of compact prosecution, Examiner notes that Oikawa does not teach away from detecting simultaneous beams. Although Oikawa describes binary information, it is only with respect to the processed data representing the coordinate of the light pen (Abstract, Col. 3, lines 47-52 and Col. 8, lines 26-28) and not a limitation on the type or amount of inputs that can be recognized. Although Oikawa is silent with regards to further processing the magnitude of an input signal beyond a

single threshold (Col. 8, lines 26-32), it does not teach away from detecting varying-intense signals and using peak values to determine the results of various inputs (Figs. 1, 6, 10A-12 and 15 and Col. 12, lines 48-68 and Col. 13, line 24-Col. 14, line 27. Examiner notes the ability to determine simultaneous beams depends on how the data is processed more so than the type of sensor being used, and that one of ordinary skill in the art would know to modify the sensors and data processing capabilities of an input system to work with a plurality of beams).

Claims 1 and 30

On page 13 of the Remarks, Applicant argues "not only does Oikawa fail to teach employing an output of said at least one detector to determine variable distance and variable angle, as set forth in claim 30 (also in claim 1), but the signals produced by the sensors of Oikawa are not usable to determine the variable distance and variable angle" (emphasis added). Examiner is not persuaded.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Examiner notes the rejection for claim 30 (and currently amended claim 1) is based on the combination of Oikawa and Lipman.

On pages 14-15 of the Remarks, Applicant argues that Oikawa and Lipman are not combinable because Oikawa "relies for data upon singular or solitary states (described therein as 'binary' or 'ON/OFF')" and "Lipman teaches an apparatus that relies upon a continuity of variably-intense data." Examiner is not persuaded.

Examiner disagrees with Applicant's interpretation of the Oikawa reference and the limitations of working in a binary manner. Electronic data, in general, is usually found in binary form at some point during processing/analysis. Although Oikawa describes binary information, it is only with respect to the processed data representing the coordinate of the light pen (Abstract, Col. 3, lines 47-52 and Col. 8, lines 26-28). While Oikawa is silent with regards to further processing the magnitude of the input signal beyond a single threshold (Col. 8, lines 26-32), it does not teach away from detecting varying-intense signals and using peak values to determine the results of various inputs (Figs. 1, 6, 10A-12 and 15 and Col. 12, lines 48-68 and Col. 13, line 24-Col. 14, line 27. Examiner notes one of ordinary skill in the art would know to modify the sensors and data processing capabilities to provide variable distance and angle detection).

Furthermore, Examiner notes that Oikawa is an x and y coordinate detection device and that Lipman teaches improving traditional x and y coordinate detection devices by introducing a "three-dimensional control" by adding movement in the z direction.

With further respect to pages 14-15 of the Remarks, Applicant argues that Oikawa "seeks to increase resolution by EXCLUDING signal information surrounding, or

other than on, the central X or Y coordinate" while Lipman "seeks to increase resolution by INCLUDING signal information from the full light impingement spot." Examiner is not persuaded.

Examiner disagrees with Applicant's interpretation of the Oikawa reference. Oikawa does not increase resolution by excluding signal information. Oikawa excludes noise components to obtain comparative detection signals (Fig. 15 and Col. 12, lines 48-68). Furthermore, although Oikawa is silent with regards to the treatment/processing of additional signal information (signal information other than the central/primary x or y coordinate), it does not teach away from detecting varying-intense signals (Figs. 1, 6, 10A-12 and 15 and Col. 12, lines 48-68 and Col. 13, line 24-Col. 14, line 27. Examiner notes one of ordinary skill in the art would know to modify the sensors and data processing capabilities to provide variable distance and angle detection).

Furthermore, Examiner disagrees that the references are not combinable because Lipman's point of novelty is improving traditional input devices (i.e., those without variable distance/angle detection such as Oikawa) to detect a variable distance and angle of the beam.

Claim 28

On pages 15-16 of the Remarks, Applicant argues that "Oikawa is exclusively concerned with isolating signals from single x and y sensors so as to provide a binary coordinate signal" and if "the elliptical spot fell over more than one wave guide, then

multiple outputs would be produced, contrary to the Oikawa binary coordinate system." Examiner is not persuaded.

Examiner disagrees with Applicant's interpretation of the Oikawa reference and the limitations of working in a binary manner. Electronic data, in general, is usually found in binary form at some point during processing/analysis. Although Oikawa describes binary information, it is only with respect to the processed data representing the coordinate of the light pen (Abstract, Col. 3, lines 47-52 and Col. 8, lines 26-28). While Oikawa is silent with regards to further processing the magnitude of the input signal beyond a single threshold (Col. 8, lines 26-32), it does not teach away from detecting varying-intense signals and using peak values to determine the results of various inputs (Fig. 15 and Col. 12, lines 48-68 and Col. 13, line 24-Col. 14, line 27. Examiner notes one of ordinary skill in the art would know to modify the sensors and data processing capabilities to provide variable distance and angle detection).

With further respect to pages 15-16 of the Remarks, Applicant argues that if "the elliptical impingement spot were to fall within a single wave guide ($9.5mm^2$), then a single binary output of position would be determined that would give no more information than if a single point spot of light hit the display" Examiner is not persuaded.

Examiner notes that Lipman supports detection of the elliptical impingement spot within a single wave guide (i.e., single matrix coordinate). According to Lipman, a signal at a very short distance will have a small area (i.e., single wave guide/matrix coordinate) but high intensity (p. 8, lines 9-10).

With further respect to pages 15-16 of the Remarks, Applicant argues that even if signals were processed of more than one wave guide, the only ratio that would be possible to achieve would be a multiple of the wave guide resolution" and that "such a resolution would not enable the determination of an angle of intersection between the beam and the panel within any tolerances that would provide a useful output." Applicant further argues "a person of ordinary skill in the art would not seek to combine these two references and would consider them incompatible." Examiner is not persuaded.

As discussed above, Oikawa does not teach away from Lipman's varying intense signals. Furthermore, Examiner notes that the "tolerance" for a "useful output" depends on the size and specific usage/functionality of the input/display device and one of ordinary skill would not consider the Oikawa and Lipman references to be incompatible per se. Although it is possible there may be a specific functionality for which the combination would not be compatible, Examiner notes Applicant is not claiming a specific tolerance or resolution.

Examiner notes it appears Applicant is arguing the Oikawa and Lipman references are incompatible for a specific purpose. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., specific tolerance or resolution) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim 29

On pages 16-17 of the Remarks, Applicant argues that the "measurement of variations in intensity is contradictory to the teaching of on/off binary signals EXLUDING signal information." Examiner is not persuaded.

Examiner disagrees with Applicant's interpretation of the Oikawa reference and the limitations of working in a binary manner as well as excluding signal information, as discussed above. Although Oikawa describes binary information, it is only with respect to the processed data representing the coordinate of the light pen (Abstract, Col. 3, lines 47-52 and Col. 8, lines 26-28). While Oikawa is silent with regards to further processing the magnitude of the input signal beyond a single threshold (Col. 8, lines 26-32), it does not teach away from detecting varying-intense signals and using peak values to determine the results of various inputs (Fig. 15 and Col. 12, lines 48-68 and Col. 13, line 24-Col. 14, line 27). Furthermore, Oikawa does not exclude signal information. Oikawa excludes noise components to obtain comparative detection signals (Fig. 15 and Col. 12, lines 48-68. Examiner notes one of ordinary skill in the art would know to modify the sensors and data processing capabilities to interpret all detected inputs, including additional signal information).

Response to Arguments

Applicant's arguments with respect to claims 1-2, 7-9, 15, 18, 22, 24-27, 29-31, 36-38, 44, 47, 51, 53-56 and 58 have been considered but are moot in view of the new ground(s) of rejection.

6. Furthermore, the common knowledge or well-known in the art statements presented in the prior office action are now taken to be admitted prior art because Applicant either failed to traverse the Examiner's assertion of official notice or the traversal was inadequate, as discussed above.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Geaghan et al. (U.S. Pub. No.: 2005/0110781) teaches a user input device that includes an array of light detectors to determine the angle of a beam of light provided by a stylus.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTONIO XAVIER whose telephone number is 571-270-7688. The examiner can normally be reached on M-Th 9:30am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. X./
Examiner, Art Unit 2629

/Amare Mengistu/

Supervisory Patent Examiner, Art Unit 2629